

Appl. No. : 10/665,693
Filed : September 17, 2003

REMARKS

Claims 1-23 are currently pending. Claims 1, 9, and 10 are amended herein.

Rejections Under 35 U.S.C. §112

Claims 10, 11, 22, and 23 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. The Examiner states that “[t]he claims contain subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention” and that “applicant refers to ‘standard pitch’ without disclosing how one skilled in the art would make and/or use a ‘variable pitch end effector.’”

Applicants respectfully disagree that Claims 10, 11, 22, and 23 fail to comply with the enablement requirement. The specification, as originally filed, describes how one skilled in the art would make and/or use a variable pitch end effector. The specification describes a variable pitch mechanism 68 that adjusts the relative spacing (“pitch”) of the end effector substrate supports 50. The variable pitch mechanism 68 is controlled by a system controller and/or the robot arm, which are programmed to control the variable pitch mechanism 68 to adjust the pitch.

For example, paragraph [0049] of the specification discloses that “[i]n the end effector’s standard pitch position 66, the relative spacing of the end effector substrate supports 50 is adjusted by a variable pitch mechanism 68 to operatively correspond with the relative spacing of the slots 17 of the standard cassette (FOUP) rack 16. In addition, the relative spacing of the variable pitch end effector supports 50 in the end effector’s reduced pitch position 64 is selected to facilitate the unloading and loading of wafers 20 to and from the slots 18 forming the reduced pitch buffer station rack 38.” Paragraph [0051] further discloses that “the robot arm 24 is preferably further programmed to place the variable pitch end effector 48 in its standard pitch position 64 when accessing the FOUP 10. Preferably, the robot arm 24 is also further programmed to place the variable pitch end effector 48 in its reduced pitch position 64 when the [sic] accessing the buffer station 30. In addition, when the variable pitch end effector 48 is proximate to either rack, the system controller is preferably programmed so that the variable pitch mechanism 68 has already adjusted the

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relative spacing of the end effector supports 50 to reflect the relative spacing of slots of the respective rack.” Figures 6A and 6B illustrate a simple mechanical mechanism comprising cams 70, which can be rotated to adjust the end effector between the standard pitch and the reduced pitch. *See also* paragraph [0053] of the specification.

Claims 1, 10, 12, and 13 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 has been amended to recite a “first substrate handling chamber” instead of a “front wafer handling chamber,” and “the front docking port.” Both of these elements have sufficient antecedent basis. Claim 10 has been amended to recite that shelves of the buffer station rack have a reduced pitch relative to shelves of a front opening unified pod (FOUP) for the same size substrates. Applicants respectfully submit that the limitation of “first substrate handling chamber” in Claims 12 and 13 have sufficient antecedent basis in Claim 1, from which they depend. The amendments to Claims 1 and 10 overcome the rejection of Claims 1, 10, 12, and 13 under 35 U.S.C. §112, second paragraph.

Amendment of Claim 9

Claim 9 has been amended to correct an obvious typographical error.

Rejections Under 35 U.S.C. §102

Claims 1-6, 10-16, and 18-23 are rejected under 35 U.S.C. §102(b) as being anticipated by Hiroki, U.S. Patent No. 5,989,346. Applicants respectfully disagree that Claims 1-6, 10-16, and 18-23 are anticipated by Hiroki.

Hiroki discloses a buffer rack 30 *within* the load lock chamber 3, not *between* the load lock chamber and the front docking port as recited in Claim 1. *See* Hiroki, at Fig. 5 and Col. 3, lines 47-50. There is no suggestion or motivation in Hiroki for a buffer rack *between* the load lock chamber and front docking port, as recited in Claim 1.

Claim 1 is therefore patentable as it is not anticipated by or obvious in view of Hiroki. Claims 2-6 and 10-13, which depend from and include all of the limitations of Claim 1, are

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therefore also patentable. Furthermore, each of the dependent claims recites further distinguishing features of particular utility.

Hiroki does not disclose or suggest a front docking port located on an outside surface of the substrate handling chamber, the port being capable of mating with a cassette, as recited in Claim 14. In Hiroki, the docking port 9b (as noted by the Examiner) is not on an outside surface of the substrate handling chamber 5, but rather on an outside surface of the load lock chamber 3. The Hiroki substrate handling chamber 5 has gate valves 9a on an outside surface, but they are not capable of mating with the cassette 42.

Claim 14 is therefore patentable as it is not anticipated by or obvious in view of Hiroki. Claims 15, 16, and 18-23, which depend from and include all of the limitations of Claim 14, are therefore also patentable. Furthermore, each of the dependent claims recites further distinguishing features of particular utility.

Rejections Under 35 U.S.C. §103

Claims 7-9 and 17 are rejected under 35 U.S.C. §103(a) as being unpatentable over Hiroki. As noted above, Claims 1 and 14 are patentable over Hiroki. Claims 7-9 and 17, which depend from and include all of the limitations of Claim 1 or Claim 14, are therefore also patentable. Furthermore, each of the dependent claims recites further distinguishing features of particular utility.

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Conclusion

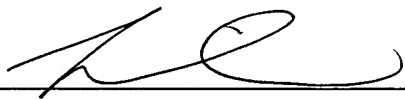
Applicants respectfully submit that all of the pending claims are patentably distinguishable and allowable over the prior art of record. The cited references, either alone or in combination, do not teach or suggest the claimed invention.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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